

MARIN-SONOMA NARROWS

Evaluation Criteria for Access Alternatives

Purpose of Evaluation -

Throughout a comprehensive EIR/EIS process, as studies progress, alternatives are refined to avoid, minimize, or mitigate environmental impacts to the greatest extent practicable. At the same time the cost effectiveness of these alternatives must be weighed and the decision to continue studies on alternatives must be justified. The intent of this exercise is to provide a systematic process for this evaluation.

This evaluation will focus on the "Access Alternatives" for the Segment B (Narrows) "Expressway to Freeway Upgrade" portion of the overall Marin Sonoma Narrows Project.

Evaluation Alternatives -

Upgrading the Narrows portion of the project from a four-lane expressway to a six-lane freeway will improve traffic flow and safety by providing interchanges and replacement access, improving visibility, providing wider shoulders and emergency pullouts, and eliminating recurrent flooding.

This upgrade will eliminate at-grade intersections and driveway access, replacing them with access alternatives that are a combination of standardized interchanges and frontage roads to maintain access to intersecting roadways and adjacent parcels.

In addition, each alternative will provide continuous bicycle and pedestrian paths to connect the cities of Novato and Petaluma.

Evaluation Process -

Step 1: A multidisciplinary evaluation team consisting of Project Development and Environmental specialists develop a matrix that defines the criteria, measurables and relative weights (See Evaluation Matrix) that will be used for evaluating the access alternatives that are currently under study. This matrix will be reviewed by the Project Development Team, Local Partners, and Policy Advisory Group.

Step 2: Specialty units fill in their portion of the matrix.

Step 3: The evaluation team meets and rates each of the criteria in the matrix. Average ratings and criteria weighting are then used to calculate a numeric score for each access alternative. Sensitivity analysis will be performed to confirm individual criteria weights.

Step 4: Numeric scores are used to compare access alternatives, weigh their environmental impacts and cost effectiveness, and decide if continued study on each alternative is justified.

Step 5: This process will be reviewed by the Project Development Team, Local Partners, and Policy Advisory Group in a public forum, then forwarded to NEPA/404 interagency for concurrence.

Step 6: Finalize studies on justified alternatives, publish findings in draft environmental document and circulate to the Public for review and selection of preferred alternative.

Evaluation Matrix -

<u>Criteria</u>		<u>Wt.</u>	<u>Description</u>
Meets Purpose and Need of Project		Y/N	Does Access Alternative meet Purpose/Need?
Section 4(F)		L/M/H	Provides Measure of 4(F) Impacts.
Traffic Operationally Feasible		Y/N	Is Access Alternative Operationally Feasible?
Right of Way Demolition		Y/N	Is Building Demolition or Relocation Assistance Required?
Weight 10%	Access	10%	Access scoring is determined by assigning a starting value of five for each access alternative. The alternatives are evaluated based on access to the three major areas (Redwood Landfill, San Antonio Creek, and Cloud Lane/Kastania) for both major and local traffic. Due to higher traffic volumes the major movements are weighted twice as heavily as the local movements. These six traffic patterns are rated for each alternative, using the following scale:
	Number of Private Parcels Number of Residential Parcels Number of Agricultural Parcels Number of Commercial Parcels Distance to Last Private Parcel Distance to Last Residential Parcel Distance to Last Agricultural Parcel Distance to Last Commercial Parcel		<ul style="list-style-type: none"> • 5 - Excellent • 4 - Good • 3 - Fair • 2 - Poor • 1 - Very Poor These ratings are then totaled for each access alternative and deductions are made to the starting value using the following range: <ul style="list-style-type: none"> • Above 34 – 0 pt deduction • 33-30 – 1 pt deduction • 29-22 – 2 pt deduction • 21-17 – 3 pt deduction • 16-13 – 4 pt deduction • Below 13 – 5 pt deduction
Weight 10%	Right of Way	10%	Right of Way scoring is determined by assigning a starting value of five for each access alternative. Deductions are then made according to amount of right of way required for each interchange in that alternative.
	Parcels Area Number of Parcels Number of Owners Railroad Involvement Complexity of Utility Involvement		<ul style="list-style-type: none"> • Airport Rd - 2 pt deduction. Large footprint in industrial area, requires realignment of the existing freeway and involves significant railroad issues • Redwood Landfill (RL) - 0 pt deduction. Minor R/W to convert private overcrossing to interchange • Southerly San Antonio (SSA) - 1 pt deduction. Average R/W required for interchange • Central San Antonio (CSA) - 2 pt deduction. Additional height of freeway to create undercrossing and average area for interchange require larger footprint • Northerly San Antonio (NSA) - 1 pt deduction. Average R/W required for interchange • Southerly Petaluma Blvd South (PBS) - 0 pt deduction. Same for all alternatives
Environmental Weight 60%	Hazardous Waste	4%	Same for all alternatives, no known impacts except airborne lead
	Number of Known Sites Is Additional Testing Required		

Evaluation Matrix – (Cont)

<u>Criteria</u>		<u>Wt.</u>	<u>Description</u>
Environmental Weight 60%	Potential Growth Inducement Land Use/Zoning/Setting	10%	<p>Potential Growth Inducement scoring is determined by assigning a starting value of five for each access alternative. Deductions are then made relative to the available area that could potentially be developed at each interchange in that alternative.</p> <ul style="list-style-type: none"> Airport Rd - 3 pt deduction. Interchange creates contiguous frontage roads, is near the urban growth boundary and existing developments Redwood Landfill (RL) - 1 pt deduction. Minimal space at interchange for potential development Southerly San Antonio (SSA) - 1 pt deduction. Minimal space at interchange for potential development Central San Antonio (CSA) - 1 pt deduction. Minimal space at interchange for potential development Northerly San Antonio (NSA) - 1 pt deduction. Minimal space at interchange for potential development Southerly Petaluma Blvd South (PBS) - 0 pt deduction. Same for all alternatives
	Visual Aesthetics Structure Height Structure Length Fits with Landform	8%	<p>Visual Aesthetics scoring is determined by assigning a starting value of five for each access alternative. Deductions are then made based on the visual impacts of each interchange in that alternative.</p> <ul style="list-style-type: none"> Airport Rd - 3 pt deduction. Long high bridge that is out of context with the area, visible from the park Redwood Landfill (RL) - 0 pt deduction. Widening existing bridge would create minimal visual impacts Southerly San Antonio (SSA) - 1 pt deduction. New interchange Central San Antonio (CSA) - 1 pt deduction. New interchange Northerly San Antonio (NSA) - 2 pt deduction. New interchange with long, high bridge Southerly Petaluma Blvd South (PBS) - 0 pt deduction. Same for all alternatives
	Watershed/Wetland Resources Area of Direct Wetland Impact Potential for Indirect Wetland Impact Area of Floodplain Impact	10%	<p>Watershed/Wetland Resources scoring is determined by assigning a starting value of five for each access alternative. Deductions are then made for each alternative based on the impacts to the wetlands for the areas listed.</p> <ul style="list-style-type: none"> Airport Rd - 3 pt deduction. Significant increase to wetland impacts Marina access via Atherton - 2 pt deduction. Considerable increase to wetland impacts Marina access east side of RR - 1 pt deduction. Slight increase to wetland impacts Marina access west side of RR - 0 pt deduction. Minimal increase to wetland impacts Redwood Landfill (RL) - 0 pt deduction. Minimal increase to wetland impacts Southerly San Antonio (SSA) - 0 pt deduction. Minimal increase to wetland impacts Central San Antonio (CSA) - 3 pt deduction. Significant increase to wetland impacts and floodplain issues Northerly San Antonio (NSA) - 0 pt deduction. Minimal increase to wetland impacts Southerly Petaluma Blvd South (PBS) - 0 pt deduction. Same for all alternatives

Evaluation Matrix – (Cont)

Criteria		Wt.	Description
Environmental Weight 60%	Biological Resources Number of Listed Species Area of Habitat Impact Tree Impact Number of Trees Impacted Percent of Native Trees Percent Cover Average Diameter at Breast Height	10%	Biological Resource scoring is determined by assigning a starting value of five for each access alternative. Deductions are then made for each alternative based on the impacts to the resources for the areas listed. <ul style="list-style-type: none">Airport Rd - 4 pt deduction. Significant increase in impacts to listed plants and wildlifeMarina access via Atherton - 3 pt deduction. Considerable increase in impacts to listed plants and wildlifeMarina access east side of RR - 2 pt deduction. Slight increase in impacts to listed plants and wildlifeMarina access west side of RR – 0 pt deduction. Minimal increase in impacts to listed plants and wildlifeRedwood Landfill (RL) - 0 pt deduction. Minimal impactsSoutherly San Antonio (SSA) - 1 pt deduction. Listed wildlife and Heritage Tree impactsCentral San Antonio (CSA) - 2 pt deduction. Significant impactNortherly San Antonio (NSA) - 0 pt deduction. Minimal impactSoutherly Petaluma Blvd South (PBS) - 0 pt deduction. Same for all alternatives
	Historic Architectural Resources Number of Eligible Properties Number of Elements Affected Visual Impact Change of Character/Use	8%	Historical Architectural Resource scoring is determined by assigning a starting value of 5 for each access alternative. Deductions are then made based on the impacts to the significant historical element (the bridge at San Antonio Rd). <ul style="list-style-type: none">1 pt deduction. Existing bridge remains4 pt deduction. Bridge is widened or replaced
	Archeological Resources Number of Disturbed Sites Number of Eligible Sites Number of Sites with Human Remains Number of Sites Directly Impacted	10%	Archeological Resource scoring is determined by assigning a starting value of 5 for each access alternative. Deductions are then made based on the potential disturbance to the archeological sites, specifically those adjacent to the bridge on San Antonio Rd. <ul style="list-style-type: none">2 pt deduction. Existing bridge remains – minimal impacts3 pt deduction. Bridge is widened or replaced – some impacts
Weight 20%	Cost Right of Way Cost Construction Cost Roadway Structures Walls Mitigation Cost Biology Archeology Historic Architecture	20%	Cost scoring is determined by assigning a starting value of five for each access alternative. Modifications are then made for each alternative based on the relative cost of Right of Way and Structures (Roadway, Wall, and Mitigation costs for all alternatives are deemed similar). Right of Way cost modifier: <ul style="list-style-type: none">High Cost – 1 pt deductionAverage Cost – 0 pt deductionLow Cost – 1 pt addition All structures for each alternative are rated based on the approximate cost of a typical structure: <ul style="list-style-type: none">Airport Rd - 5 pts, high/large area of structure/rampsRedwood Landfill (RL) - 0.5 pts widen existing overcrossingSoutherly San Antonio (SSA) - 1 pt typical freeway overcrossingCentral San Antonio (CSA) - 2 pts high/large area of structure/rampsNortherly San Antonio (NSA) - 1.5 pts high/long structureSoutherly Petaluma Blvd. South – 0 pts same for all alternatives These ratings are then totaled for each access alternative and the following additional deductions are made to the starting value: <ul style="list-style-type: none">Below 1.0 – 0 pt deduction1.5-2.0 – 1 pt deduction2.5-3.0 – 2 pt deduction3.5-4.5 – 3 pt deduction5.0 - 6.5 – 4 pt deductionAbove 6 – 5 pt deduction

MARIN SONOMA NARROWS

Evaluation Criteria Matrix

Summary Sheet

Alternative	Total Score	Access	RW	Enviro	Cost
1	1.62	0.30	0.20	1.12	0.00
2	1.20	0.20	0.20	0.80	0.00
3a	3.14	0.30	0.40	1.64	0.80
3b	3.44	0.30	0.40	1.94	0.80
4a	3.56	0.40	0.40	1.96	0.80
4b	3.86	0.40	0.40	2.26	0.80
5a	2.80	0.30	0.30	1.80	0.40
5b	3.10	0.30	0.30	2.10	0.40
5c	2.80	0.30	0.30	1.80	0.40
5d	3.10	0.30	0.30	2.10	0.40
6a	2.52	0.40	0.30	1.22	0.60
6b	2.82	0.40	0.30	1.52	0.60
7	0.98	0.30	0.10	0.58	0.00
8	2.52	0.30	0.30	1.12	0.80
9a	2.90	0.50	0.30	1.70	0.40
9b	3.20	0.50	0.30	2.00	0.40
10	2.94	0.20	0.40	1.34	0.80
11	1.66	0.10	0.30	0.86	0.20
12a	4.04	0.30	0.50	2.24	1.00
12b	4.34	0.30	0.50	2.54	1.00
13	3.40	0.10	0.50	1.60	1.00
14a	3.76	0.30	0.40	2.06	1.00
14b	4.06	0.30	0.40	2.36	1.00
14c	3.76	0.30	0.40	2.06	1.00
14d	4.06	0.30	0.40	2.36	1.00
15	1.34	0.30	0.10	0.94	0.00

MARIN SONOMA NARROWS

Evaluation Criteria Matrix

Summary Sheet

Alternative	Total Score	Access	R/W	Haz Waste	Growth	Visual	Wetland	Biology	Hist Archt	Arch	Enviro	Cost
1	1.62	0.30	0.20	0.12	0.10	0.08	0.20	0.00	0.32	0.30	1.12	0.00
2	1.20	0.20	0.20	0.12	0.10	0.00	0.20	0.10	0.08	0.20	0.80	0.00
3a	3.14	0.30	0.40	0.12	0.30	0.24	0.40	0.30	0.08	0.20	1.64	0.80
3b	3.44	0.30	0.40	0.12	0.30	0.24	0.50	0.50	0.08	0.20	1.94	0.80
4a	3.56	0.40	0.40	0.12	0.30	0.32	0.40	0.20	0.32	0.30	1.96	0.80
4b	3.86	0.40	0.40	0.12	0.30	0.32	0.50	0.40	0.32	0.30	2.26	0.80
5a	2.80	0.30	0.30	0.12	0.30	0.16	0.40	0.20	0.32	0.30	1.80	0.40
5b	3.10	0.30	0.30	0.12	0.30	0.16	0.50	0.40	0.32	0.30	2.10	0.40
5c	2.80	0.30	0.30	0.12	0.30	0.16	0.40	0.20	0.32	0.30	1.80	0.40
5d	3.10	0.30	0.30	0.12	0.30	0.16	0.50	0.40	0.32	0.30	2.10	0.40
6a	2.52	0.40	0.30	0.12	0.30	0.32	0.10	0.10	0.08	0.20	1.22	0.60
6b	2.82	0.40	0.30	0.12	0.30	0.32	0.20	0.30	0.08	0.20	1.52	0.60
7	0.98	0.30	0.10	0.12	0.10	0.08	0.00	0.00	0.08	0.20	0.58	0.00
8	2.52	0.30	0.30	0.12	0.40	0.32	0.00	0.00	0.08	0.20	1.12	0.80
9a	2.90	0.50	0.30	0.12	0.20	0.16	0.40	0.20	0.32	0.30	1.70	0.40
9b	3.20	0.50	0.30	0.12	0.20	0.16	0.50	0.40	0.32	0.30	2.00	0.40
10	2.94	0.20	0.40	0.12	0.40	0.24	0.30	0.20	0.08	0.00	1.34	0.80
11	1.66	0.10	0.30	0.12	0.20	0.16	0.20	0.10	0.08	0.00	0.86	0.20
12a	4.04	0.30	0.50	0.12	0.40	0.40	0.40	0.30	0.32	0.30	2.24	1.00
12b	4.34	0.30	0.50	0.12	0.40	0.40	0.50	0.50	0.32	0.30	2.54	1.00
13	3.40	0.10	0.50	0.12	0.50	0.40	0.30	0.20	0.08	0.00	1.60	1.00
14a	3.76	0.30	0.40	0.12	0.40	0.32	0.40	0.20	0.32	0.30	2.06	1.00
14b	4.06	0.30	0.40	0.12	0.40	0.32	0.50	0.40	0.32	0.30	2.36	1.00
14c	3.76	0.30	0.40	0.12	0.40	0.32	0.40	0.20	0.32	0.30	2.06	1.00
14d	4.06	0.30	0.40	0.12	0.40	0.32	0.50	0.40	0.32	0.30	2.36	1.00
15	1.34	0.30	0.10	0.12	0.00	0.00	0.20	0.00	0.32	0.30	0.94	0.00

MARIN SONC 1A NARROWS

Evaluation Criteria Matrix

ACCESS CRITERIA SUMMARY									
Alternative	Score	Points	Redwood Landfill (RL)		San Antonio (SA)		Cloud Lane Kastania (CLK)		Local
			Main	Local	Main	Local	Main	Local	
1	3	26	Poor	Good	Excellent	Good	N/A		Good
2	2	19	Poor	Good	Poor	Poor	N/A		Excellent
3a-3b	3	25	Excellent	Good	Poor	Poor	N/A		Excellent
4a-4b	4	32	Excellent	Good	Excellent	Good	N/A		Good
5a-5d	3	27	Poor	Good	Excellent	Good	N/A		Excellent
6a-6b	4	33	Excellent	Good	Excellent	Excellent	N/A		Good
7	3	27	Poor	Good	Excellent	Excellent	N/A		Good
8	3	25	Very Poor	Good	Excellent	Excellent	N/A		Good
9a-9b	5	35	Excellent	Excellent	Excellent	Excellent	N/A		Excellent
10	2	17	Very Poor	Good	Poor	Poor	N/A		Excellent
11	1	15	Poor	Good	Very Poor	Very Poor	N/A		Good
12a-12b	3	28	Excellent	Good	Good	Poor	N/A		Good
13	1	13	Very Poor	Good	Very Poor	Very Poor	N/A		Good
14a-14d	3	26	Poor	Good	Excellent	Good	N/A		Good
15	3	27	Poor	Good	Excellent	Good	N/A		Excellent

ACCESS POINTS	
Excellent - 5 points, direct access	
Good - 4 points, improves access	
Fair - 3 points, similar to existing access	
Poor - 2 points, access worse than existing	
Very Poor - 1 point, Significantly worse than existing	

ACCESS SCORE	
Above 34	0 pt deduction
33-30	1 pt deduction
29-22	2 pt deduction
21-17	3 pt deduction
16-13	4 pt deduction
Below 13	5 pt deduction

GENERAL COMMENTS

Main - Major traffic movements such as Landfill traffic at Redwood Landfill or South Petaluma commuter traffic at San Antonio Rd. There is no major traffic movement from the Cloud Lane/Kastania Road area.

Local - Localized traffic from residents and local businesses.